

blood. One must also accept the cost and risk of the workup when occult blood is found in stool specimens, to be able to detect colorectal cancer at an earlier stage and improve the prognosis. I favor the American Cancer Society's recommendations for the present instead of awaiting the results of clinical trials.

The International Workgroup on Colon Rectal Cancer has recommended that fecal occult blood testing be done annually beginning between the ages of 40 and 50 years.

ROBERT J. MCKENNA, MD

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Prevention of Hepatitis B Virus Infections From Mothers to Infants

WHILE RELATIVELY UNCOMMON in the United States, chronic infection with hepatitis B virus (HBV) may be found in up to 15% of the population in many developing countries. A significant proportion of these infections occurs as a result of mother-to-infant transmission. Persons chronically infected with HBV, especially those infected at birth or early in life, are at increased risk of subsequent liver disease such as chronically active hepatitis, cirrhosis and primary hepatocellular carcinoma.

In California alone (an area of low incidence), an estimated 3,000 to 5,000 women who are positive for hepatitis B surface antigen (HBsAg) give birth each year. Most mother-to-infant infections seem to occur at the time of delivery (connatal) or shortly thereafter, rather than transplacentally. The probability of exposed neonates becoming HBV carriers can be greatly reduced by administering hepatitis B immune globulin. The Public Health Service Immunization Practices Advisory Committee (ACIP) recommended in 1981 that all infants born to HBsAg-positive mothers should be given 0.5 ml of hepatitis B immune globulin immediately after birth and at three and six months. The Committee on Infectious Diseases of the American Academy of Pediatrics has made a similar recommendation.

In June 1982 the ACIP recommended that infants born to HBV-infected mothers should also receive hepatitis B virus vaccine, in addition to the three doses of hepatitis B immune globulin, inasmuch as these infants may continue to be at risk of infection from their mothers and other possible carriers in the household. The optimal timing for giving the vaccine in conjunction with hepatitis B immune globulin has not yet been established. Until additional data are available, however, the ACIP has recommended that immunization with hepatitis B virus vaccine should be started at three months of age, or shortly thereafter.

To carry out appropriate prophylactic measures in the delivery room, it is necessary to know before de-

livery whether the mother has the hepatitis B surface antigen. The HBsAg carrier rate in the US population ranges from 0.1% to 0.5%. Much higher HBsAg carrier rates are found in persons from hyperendemic hepatitis B virus areas of the world, such as Asia, Sub-Saharan Africa and the Pacific Islands. Persons of Asian ancestry born in the United States appear to maintain relatively high HBsAg carrier rates. There are thus clear indications for doing routine prenatal HBsAg testing of women who are members of groups with HBsAg carrier rates of 1% or more. In addition to the ethnic minorities already mentioned, these groups include women who have acute or chronic liver disease, frequent occupational exposure to blood, household or sexual contacts of known HBsAg carriers and women with a history of injecting illicit drugs.

The prevention or modification of hepatitis B virus infections in infants deserves high priority as there is no present cure or treatment for the chronic HBsAg carrier state once it is established. Additionally, failure to identify pregnant carriers in the known high-risk groups can expose health care providers to an increased risk of nosocomial hepatitis B and to possible legal action on behalf of those infants in whom the chronic carrier state might develop because of the failure to provide any prophylaxis.

JAMES CHIN, MD

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Pesticides as a Public Health Concern in California

CALIFORNIA LEADS the nation both in the volume of pesticides used and in the number of pesticide-related illnesses. In 1981 the statewide use was 218 million kg (480 million lbs) of pesticides, 78% of which was for agriculture, the remainder for home, garden, structural and industrial use. Last year, 1,388 illnesses related to occupational exposure to pesticides were documented in the state, 48% of which involved systemic symptoms, the rest being skin and eye conditions. This information is based on physicians' reports of pesticide illness and investigations by agricultural and public health agencies. The State Health and Safety Code requires that any physician "who knows, or has reasonable cause to believe, that a patient is suffering from pesticide-related illness" must report the case to the local health officer within 24 hours; also, in work-related illness, a "Physician's First Report" of illness must be filed within seven days. Failure to comply with the reporting requirement renders the physician liable for a civil penalty of \$250.

The high-risk occupations for systemic pesticide illness are mixing, loading and applying of pesticides,

particularly fumigants and organophosphates. Also, workers harvesting fruit and vegetable crops accounted for 362 illnesses. The problem of field worker poisoning is most pronounced in coastal areas where highly toxic organophosphates (for example, mevinphos) and carbamates (for example, aldicarb) are applied to row crops shortly before harvest. The State Agriculture Code for specific pesticides requires that workers not reenter treated fields until pesticide residues have degraded to levels that should not result in acute worker illness. However, dermatitis, the most common field worker illness, and systemic poisonings from dermal absorption of organophosphates do occur because workers are sent into fields before the reentry interval expires.

Clinicians who wish a handbook review of the subject may request the manual *Recognition and Management of Pesticide Poisonings* from the Environmental Protection Agency. The definitive text on the subject is Wayland Hayes' recently published *Pesticides Studied in Man*.

RICHARD J. JACKSON, MD, MPH

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International Travel Requirements

TRAVELERS WHO SEE physicians before traveling abroad usually do so because of the perceived need for a required immunization. More often than not these immunizations are not required, but other immunizations, chemoprophylaxis and advice are much more important for a traveler's health.

Only two immunizations can be legally required of civilian travelers. (Smallpox has been officially eradicated with the last reported endemic case in 1977, and no country presently requires smallpox immunization.) Countries requiring immunization against cholera or yellow fever (or both) can refuse the right of entry to travelers who have neither a valid immunization recorded on the International Certificate of Vaccination nor a written statement from a physician indicating why immunization was contraindicated. An annually updated list of required immunizations by country is provided by the Public Health Service in the Information for International Travel Monograph, available from the Centers for Disease Control, 1600 Clifton Rd, NE, Atlanta, GA 30333.

The risk of cholera in travelers with normal gastric acid is minimal. Nevertheless, many countries require cholera vaccine for all travelers or for those coming from a cholera endemic area, therefore, cholera immunization is often given to travelers to prevent border hassles. One injection of the presently available killed

cholera vaccines will meet international requirements, and, after a six-day waiting period, is valid for six months. Cholera immunization is not recommended or required for infants.

Yellow fever, limited to tropical Africa and South America, can be prevented by a single injection of attenuated 17D live virus vaccine; the certificate of vaccination is good for ten years after a ten-day waiting period. Yellow fever vaccine is not recommended for infants less than 1 year of age, for pregnant women or for immunocompromised persons. Correct handling of the vaccine, described in detail on the label, is essential.

In addition to immunizations that may be required, all children should have their childhood immunizations up to date. Adults should be urged to have a tetanus booster and live oral poliovirus vaccine if they have not been immunized with these agents within the past ten years. Adults who have not previously received oral poliovirus vaccine or whose polio immunization record is uncertain should receive parenteral (killed) poliovirus vaccine to avoid the small risk (1 per 11 million doses) of paralytic poliomyelitis associated with live oral poliovirus vaccine. Travelers to developing countries may also be given typhoid vaccine: three doses are recommended but a single dose, all that many travelers have time for, offers some protection. γ -Globulin is recommended to reduce the risk of hepatitis A. When necessary, all active immunizations can be given at separate sites on the same day. γ -Globulin, however, may interfere with antibody response to active immunization and should be given at least two weeks, and preferably four, after the vaccines. Because γ -globulin protection wanes over time, it should be given only a few days before departure.

Other vaccines occasionally recommended for travelers according to itinerary and life-style are plague, rabies and bacille Calmette-Guérin (BCG) against tuberculosis; few persons who travel for pleasure need these vaccines. Typhus vaccine is not recommended for travelers, nor is it available in the United States.

Few travelers come to a physician seeking antimalarial drugs. Physicians must match the itinerary against the malaria transmission by country data provided in the Information for International Travel Monograph. For most travelers to most malarious areas a weekly (300 mg base) dose of chloroquine throughout the entire period of exposure and for six weeks thereafter will suffice. This should be started one to two weeks before exposure to be sure that the medication is tolerated. Except for a few persons who are chloroquine intolerant (vomiting and malaise being the most common side effects), chloroquine can be given safely to all travelers, including children and pregnant women. Chloroquine-resistant falciparum malaria is seen in Southeast Asia and some parts of South America and East Africa. Travelers to these areas, as detailed in the monograph, should receive Fansidar (Hoffmann-La Roche) in addition to chloroquine. Fansidar is a newer antimalarial agent, each tablet contain-